In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by double bracketing.

1. (Currently amended) A method of generating an offset sequence for use as a pseudo-random number (PN) code in a wireless communication, the method comprising acts of:

generating a reference sequence;

determining an initial state vector based at least in part on a mask associated with a first offset from the reference sequence, the initial state vector operating initially as a current state vector; and

generating the offset sequence [[from]] beginning at the [[first]] initial state vector, the offset sequence offset from the reference sequence by the first offset, wherein generating the offset sequence includes generating a plurality of bits of the offset sequence on each of a plurality of iterations, each of the plurality of iterations comprising acts of:

providing i bits of the current state vector as a portion of the offset sequence, i having a value greater than 1; and

computing a subsequent state vector advanced at least i states from the current state vector, the subsequent state vector operating as the current state vector for a next iteration of the plurality of iterations.

2. (Original) The method of claim 1, wherein the acts of generating the reference sequence and generating the offset sequence include generating the reference sequence and the offset sequence at different phases of a base sequence.

3. (Original) The method of claim 2, wherein the act of determining the initial state vector includes an act of determining the initial state vector based at least in part on a characteristic polynomial associated with the base sequence.

4. (Original) The method of claim 3, wherein the act of determining the initial state vector includes an act of multiplying the mask by the characteristic polynomial.

5. (Original) The method of claim 3, wherein the act of determining the initial state vector includes an act of determining the initial state vector based at least in part on a current state vector associated with the reference sequence.

6. (Canceled).

7. (Currently amended) The method of claim 1 [[6]], wherein the act of computing the subsequent state vector includes computing the subsequent state vector based on the current state vector and a characteristic polynomial associated with the base sequence.

8. (Original) The method of claim 7, wherein the act of computing the subsequent state vector includes an act of computing the subsequent state vector based on at least one partial state vector associated with the current state vector and a truncated polynomial.

9. (Original) The method of claim 8, wherein the at least one partial state vector includes a first partial state vector and a second partial state vector and wherein the act of computing the subsequent state vector includes an act of computing a sum of the first partial state vector and a product of the second partial state vector and the truncated polynomial.

10. (Original) The method of claim 7, wherein i has a value based on an order difference of the characteristic polynomial.

11. (Original) The method of claim 7, wherein on each iteration, the act of computing a subsequent state vector includes an act of computing an expanded state vector having a number of bits simultaneously available greater than an order difference of the characteristic polynomial.

12. (Original) The method of claim 7, further comprising an act of expanding the characteristic polynomial to provide an expanded characteristic polynomial.

13. (Original) The method of claim 12, wherein the act of expanding the characteristic polynomial includes an act of expanding the characteristic polynomial such that an order difference of the expanded characteristic polynomial is greater than an order difference of the characteristic polynomial.

14. (Original) The method of claim 13, wherein i is equal to the order difference of the expanded characteristic polynomial.

15. (Original) The method of claim 12, wherein the act of expanding the characteristic polynomial includes at least one of applying coarse polynomial shaping, fine polynomial shaping and one-step polynomial reshaping.

16. (Currently amended) A computer readable medium encoded with instructions for execution on at least one processor, the instructions, when executed on the at least one processor, performing a method of generating an offset sequence for use as a pseudo-random number (PN) code in a wireless communication, the method comprising acts of:

determining an initial state vector based at least in part on a mask associated with a first offset from the reference sequence, the initial state vector operating initially as a current state vector; and

generating the offset sequence [[from]] beginning at the [[first]] initial state vector, the offset sequence offset from the reference sequence by the first offset, wherein generating the offset sequence includes generating a plurality of bits of the offset sequence on each of a plurality of iterations, each of the plurality of iterations comprising acts of:

providing i bits of the current state vector as a first portion of the offset sequence, i having a value greater than 1; and

computing a subsequent state vector advanced at least i states from the current state vector, the subsequent state vector operating as the current state vector for a next iteration of the plurality of iterations.

17. (Original) The computer readable medium of claim 16, wherein the acts of generating the reference sequence and generating the offset sequence include generating the reference sequence and the offset sequence at different phases of a base sequence.

18. (Original) The computer readable medium of claim 17, wherein the act of determining the initial state vector includes an act of determining the initial state vector based at least in part on a characteristic polynomial associated with the base sequence.

19. (Original) The computer readable medium of claim 18, wherein the act of determining the initial state vector includes an act of multiplying the mask by the characteristic polynomial.

20. (Original) The computer readable medium of claim 18, wherein the act of determining the initial state vector includes an act of determining the initial state vector based at least in part on a current state vector associated with the reference sequence.

21. (Canceled).

22. (Currently amended) The computer readable medium of claim 16 [[21]], wherein the act of computing the subsequent state vector includes computing the subsequent state vector based on the current state vector and a characteristic polynomial associated with the base sequence.

23. (Original) The computer readable medium of claim 22, wherein the act of computing the subsequent state vector includes an act of computing the subsequent state vector

based on at least one partial state vector associated with the current state vector and a truncated polynomial.

24. (Original) The computer readable medium of claim 23, wherein the at least one partial state vector includes a first partial state vector and a second partial state vector and wherein the act of computing the subsequent state vector includes an act of computing a sum of the first partial state vector and a product of the second partial state vector and the truncated polynomial.

25. (Original) The computer readable medium of claim 22, wherein i has a value based on an order difference of the characteristic polynomial.

26. (Original) The computer readable medium of claim 21, wherein on each iteration, the act of computing a subsequent state vector includes an act of computing an expanded state vector having a number of bits simultaneously available greater than an order difference of a characteristic polynomial associated with the base sequence.

27. (Original) The computer readable medium of claim 22, further comprising an act of expanding the characteristic polynomial to provide an expanded characteristic polynomial.

28. (Original) The computer readable medium of claim 27, wherein the act of expanding the characteristic polynomial includes an act of expanding the characteristic polynomial such that an order difference of the expanded characteristic polynomial is greater than an order difference of the characteristic polynomial.

29. (Original) The computer readable medium of claim 28, wherein i is equal to the order difference of the expanded characteristic polynomial.

30. (Original) The computer readable medium of claim 27, wherein the act of expanding the characteristic polynomial includes at least one of applying coarse polynomial shaping, fine polynomial shaping and one-step polynomial reshaping.

31. (Currently amended) A computer readable medium encoded with instructions for execution on at least one processor, the instructions, when executed on the at least one processor, performing a method for use with a sequence generator having a plurality of states adapted to produce an offset sequence for use as a pseudo-random number (PN) code in a wireless communication, the method comprising acts of:

receiving an input including a mask associated with a first offset of a reference sequence of the sequence generator; and

determining a first state of the plurality of states based on the input, the first state operating initially as a current state of the sequence generator, wherein ~~such that~~ when the first state is applied to the sequence generator, [[an]] the offset sequence at the first offset from the reference sequence is provided, and wherein a plurality of bits of the offset sequence are generated on each of a plurality of iterations, each of the plurality of iterations including:

providing i bits of the current state of the sequence generator as a first portion of the offset sequence, i having a value greater than 1; and

computing a next state of the sequence generator advanced at least i states from the current state, the next state operating as the current state of the sequence generator on a next iteration of the plurality of iterations.

32. (Original) The computer readable medium of claim 31, wherein the act of receiving an input includes an act of receiving an input including a characteristic polynomial associated with the sequence generator.

33. (Original) The computer readable medium of claim 32, wherein the act of receiving the input includes an act of receiving an input including a current state of the sequence generator associated with the reference sequence.

34. (Original) The computer readable medium of claim 32, wherein the act of receiving the input includes an act of receiving an input including at least one pre-computed state of the sequence generator.

35. (Original) The computer readable medium of claim 32, wherein the act of determining one of the plurality of states includes an act of multiplying the characteristic polynomial by the mask.

36. (Original) The computer readable medium of claim 31, further performing an act of applying the first state to the sequence generator.

37. (Canceled).

38. (Currently amended) The computer readable medium of claim 31 [[37]], wherein the act of computing the next state includes computing the next state based on the current state and a characteristic polynomial associated with the sequence generator.

39. (Original) The computer readable medium of claim 38, wherein the act of computing the next state includes an act of computing the next state based on at least one partial state vector associated with the current state and a truncated polynomial, the truncated polynomial truncated from the characteristic polynomial.

40. (Original) The computer readable medium of claim 39, wherein the at least one partial state vector includes a first partial state vector and a second partial state vector and wherein the act of computing the next state includes an act of computing a sum of the first partial state vector and a product of the second partial state vector and the truncated polynomial.

41. (Original) The computer readable medium of claim 40, wherein i has a value based on an order difference of the characteristic polynomial.

42. (Original) The computer readable medium of claim 37, wherein on each iteration, the act of computing the next state includes an act of computing an expanded state having a number of bits available that is greater than an order difference of a characteristic polynomial associated with the sequence generator.

43. (Original) The computer readable medium of claim 41, further comprising an act of expanding the characteristic polynomial to provide an expanded characteristic polynomial.

44. (Original) The computer readable medium of claim 43, wherein the act of expanding the characteristic polynomial includes an act of expanding the characteristic polynomial such that an order difference of the expanded characteristic polynomial is greater than an order difference of the characteristic polynomial.

45. (Original) The computer readable medium of claim 44, wherein i is equal to the order difference of the expanded characteristic polynomial.

46. (Original) The computer readable medium of claim 43, wherein the act of expanding the characteristic polynomial includes at least one of applying coarse polynomial shaping, fine polynomial shaping and one-step polynomial reshaping.

47. (Original) The computer readable medium of claim 31 in combination with a transceiver, the transceiver comprising:

a memory including the computer readable medium; and

a processor coupled to the memory, the processor adapted to execute the instructions encoded on the computer readable medium.

48. (Original) The combination of claim 47, in further combination with a plurality of transceivers, each of the plurality of transceivers comprising:

a memory including the computer readable medium; and

a processor coupled to the memory, the processor adapted to execute the instructions encoded on the computer readable medium.

49. (Original) The combination of claim 48, wherein at least one of the plurality of transceivers is a base station and wherein the memory includes a plurality of masks assigned to each respective other of the plurality of transceivers.

50. (Original) The combination of claim 48, wherein the memory of each of the plurality of transceivers includes a respective mask unique from masks of each other of the plurality of transceivers.

51. (Currently amended) A sequence generator for generating an offset sequence for use as a pseudo-random number (PN) code in a wireless communication, the sequence generator comprising:

a first component having a plurality of states, the first component configured to generate a reference sequence and [[an]] the offset sequence; and

a second component adapted to receive at least one mask associated with an offset from the reference sequence, the second component configured to determine an initial state from the plurality of states based at least in part on the at least one mask, the first state operating initially as a current state of the sequence generator, wherein ~~such that~~ when the first component is operated from the initial state, the first component generates the offset sequence offset from the reference sequence by the offset,

wherein the first component is adapted to simultaneously provide at least two bits of the current state associated with the reference sequence as a portion of the offset sequence on each of a plurality of iterations of the sequence generator, and wherein the second component is further adapted to compute a next state advanced from the current state by at least two of the plurality of states on each of the plurality of iterations, the next state operating as the current state in a next iteration of the plurality of iterations.

52. (Original) The sequence generator of claim 51, wherein the reference sequence and the offset sequence are produced at separate phases of a base sequence.

53. (Original) The sequence generator of claim 52, wherein when the sequence generator is transitioned through each of the plurality of states, a period of the base sequence is generated.

54. (Original) The sequence generator of claim 53, wherein the base sequence is a maximal length pseudo noise sequence.

55. (Original) The sequence generator of claim 51, wherein the second component is adapted to determine the initial state based at least in part on a characteristic polynomial.

56. (Original) The sequence generator of claim 51, wherein the second component is adapted to determine the initial state based at least in part on a current state of the first component associated with the reference sequence.

57. (Canceled).

58. (Canceled).

59. (Currently amended) The sequence generator of claim 51 [[58]], wherein the number of bits provided simultaneously is equal to the number of states the next state is advanced from the current state.

60. (Currently amended) The sequence generator of claim 51 [[58]], wherein at least one of the at least two bits and the at least two states are the same in number as an order difference of a characteristic polynomial associated with the sequence generator.

61. (Currently amended) The sequence generator of claim 51 [[58]], wherein the second component is adapted to increase a length of the plurality of states such that the at least two bits of the current state provided as the output sequence is increased in number.

62. (Currently amended) The sequence generator of claim 51 [[58]], wherein the second component is adapted to generate an expanded state associated with the current state of the sequence generator associated with the offset sequence, the expanded state having a greater number of bits available simultaneously than each of the plurality of states.

63. (Original) The sequence generator of claim 62, wherein the expanded state is associated with an expanded characteristic polynomial having an order difference greater than an order difference of a characteristic polynomial associated with the sequence generator.

64. (Original) The sequence generator of claim 63, wherein the order difference of the expanded characteristic polynomial is increased from the order difference of the characteristic polynomial by applying at least one of course polynomial reshaping, fine polynomial reshaping, and one-step polynomial reshaping.

65. (Original) The sequence generator of claim 63, wherein the order difference of the expanded characteristic polynomial is a multiple of 8.

66. (Original) The sequence generator of claim 62, wherein the expanded state vector is determined based on a current state associated with the characteristic polynomial and an expansion operator associated with the characteristic polynomial.

67. (Original) The sequence generator of claim 51, in combination with a transceiver, the transceiver comprising:

at least one processor coupled to the first component and the second component;

a modem coupled to the processor, the modem adapted to modulate and demodulate data with the offset sequence provided by the first component.

68. (Original) The sequence generator of claim 67, wherein the transceiver further comprises a memory for storing a mask associated with an offset of the reference sequence.

69. (Original) The sequence generator of claim 51, in combination with a network, the network comprising a plurality of transceivers, each transceiver comprising:

at least one processor coupled to the first component and the second component;

a modem coupled to the processor, the modem adapted to modulate and demodulate data with the offset sequence provided by the first component.

70. (Original) The sequence generator of claim 69, wherein at least one of the plurality of transceivers is a base station, the base station further comprising a memory for storing a plurality of masks associated with each other of the plurality of transceivers.

71-85 (Canceled).